

WHAT IS CLAIMED IS

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1. A vector search method in which a difference error between a prediction vector and an input vector is calculated in such a way that combinations of factors respectively multiplied by a plurality of basic vectors are changed according to the Gray code.

2. A vector search method as claimed in Claim 1, wherein an intermediate value G_u obtained by calculation of a synthetic vector created according to a sign word u of the Gray code is expressed by an intermediate value G_i obtained by a calculation of a synthetic vector created according to an adjacent sign word i different from said sign word u only in a predetermined bit position v and a change ΔG_u calculated by utilizing the Gray code characteristic, and

said ΔG_u is used to express a change $\Delta G_u'$ between an intermediate value G_i' according to another sign word i' in said Gray code and an intermediate value G_u' according to an adjacent sign word u' different from said sign word i' only in a predetermined bit position v .

3. A vector search method as claimed in Claim 2, wherein said prediction vector is created through a prediction synthesis filter by synthesizing said synthetic vector and a vector based on a past sound source signal.

4. A vector search method as claimed in Claim 2, wherein

said sign word u' in said Gray code differs from said sign word u only in one bit position w excluding the predetermined bit position v , and

said change $\Delta Gu'$ is expressed as a sum of said change ΔGu already obtained according to said sign word u of said Gray code and a difference between said change ΔGu and said $\Delta Gu'$.

5. A vector search method as claimed in Claim 2, wherein the calculation to minimize the difference between said prediction vector and said input vector is a calculation to determine such a synthetic vector from synthetic vectors created by synthesizing basic vectors for the sign word i of the Gray code that makes maximum an inner product with said input vector, and

said inner product is expressed, by using two variables C_i and G_i , as C_i^2/G_i , whose value is made maximum.

6. A vector search method as claimed in Claim 2, wherein the calculation to minimize the difference between said prediction vector and said input vector is a calculation to determine such synthetic vector from synthetic vectors created by synthesizing basic vectors for the sign word i of the Gray code that makes minimum an Euclid distance from said input vector, and

said Euclid distance is expressed by a sum of two variables C_i and G_i , which sum is minimized.